Extension Activities to achieve more Math and Science Standards with your STARBASE Academy experience

Academic Standard	STARBASE Lesson	Extension Activities
Geometry 7th Grade CCSS.Math Content. 7.G.A.1.	Operation Bridge Quest (Engineering A-Engineering Design Process) Newton's Second Law of Motion – Straw Rockets (Physics A-Newton's 3 Laws of Motion)	Students can redesign their original bridge (beam or floating) or straw rocket by sketching their new prototype as a scaled down drawing of the model. Then, they will make a larger three-dimensional model of the new prototype.
Math 6th Grade CCSS. Math Content. 6.EE.C.9.	CO_2 Rocket Dragsters (Physics A-Newton's 3 Laws of Motion)	Educators can reference the equation that scientists use to calculate acceleration (Force =Mass x Acceleration). Since students already calculated the speed of the CO_2 Dragster Rocket Car, students can graph the car's speed as a Dependent Variable and Mass/Force as an Independent Variable.
Math 6th Grade CCSS. Math Content. 6.EE.C.9.	Newton's Second Law of Motion – Straw Rockets (Physics A-Newton's 3 Laws of Motion)	Educators can reference the equation that scientists use to calculate acceleration (Force =Mass x Acceleration). Students can calculate the speed that the straw rocket traveled. Students can graph the new rocket's speed as a Dependent Variable and Mass/Force as an Independent Variable.
Science 5th Grade Earth's System 5-ESS2-1.	Introduction to Atmospheric Properties – Parent (Physics B-Atmospheric Properties)	Educators can reference the student's previous knowledge of the atmosphere and introduce another Earth System (biosphere, geosphere, and hydrosphere). Then, use examples to explain how these systems interact.

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Science 5th Grade Earth's Systems 5-ESS3-1.	STEM Careers: Aviation Career Video, Guest Speaker and/or Career Book (STEM Careers A-STEM Careers on Military Facilities & STEM Careers B -Personal Investigations)	Students can write a letter to the STEM guest speaker or a professional in a STEM field that they researched during the career exploration activity. The letter should focus on asking questions about how their industry or profession uses science ideas to protect the Earth's resources and environment. More STEM career explorations resources: Technical College System of Georgia – Road Trip TV Series http://www.gpb.org/roadtrip Smithsonian National Air and Space Museum's STEM in 30 Series http://airandspace.si.edu/explore-and-learn/stem-in-30/
Science 5th Grade Structure & Properties of Matter 5-PS1-2.	Introduction to Physical and Chemical Change: Parent (Chemistry B – Physical and Chemical Changes) Warm Ups and Cool Downs (Chemistry B-Physical and Chemical Changes)	Educators can conduct Melting Ice Blocks and Warm Up/Cool Down experiments, again. Students will measure the substances' weight before and after substances are mixed or heated to create the chemical or physical change. Then, graph the weights and temperatures to show that total weight is conserved. (Check if the Alka Seltzer or Calcium Chloride is more appropriate as chemical changes will create a gas which cannot be weighted with a scale.)